Department of the Army
U.S. Army Research, Development and Engineering Command
(RDECOM)
Picatinny Arsenal, New Jersey 07806-5000

Environmental Assessment for High Energy Propellant Formulation Facility at Picatinny Arsenal, New Jersey

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(continued)

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Concur: _____ Date: 7/1/04
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High Energy Propellant Formulation Facility
U.S. Army Research, Development and Engineering Command
Picatinny Arsenal, NJ 07806-5000

FINDING OF NO SIGNIFICANT IMPACT (FNSI)

Description of Proposed Action and Alternatives Considered

The Proposed Action, for which an Environmental Assessment has been prepared, resulting in this Finding of No Significant Impact (FNSI), is the creation of a High Energy Propellant Formulation Facility (HEPFF). Other alternative were considered and ruled out after analysis. The project is intended to improve existing conditions by providing new state-of-the-art facilities for preparing and testing experimental propellants. Work areas will be designed for the various operations to be conducted in formulating, processing and testing propellants. The new facilities will meet environmental and safety standards. The existing facilities now used for this work are located in several parts of Picatinny Arsenal, necessitating transportation of energetic material over routes open to Arsenal employees. The work performed in the new facilities will be the same type of work as is now done elsewhere. The improved systems will reduce environmental impact of operations by controlling emissions with a new solvent vapor recovery system. Existing facilities are also limited in operations by obsolescence of systems.

The proposed facility will be established in the 1300 and 1400 areas. The site is partly occupied by existing buildings; six have already been demolished and decontaminated. Thirteen new buildings will house explosives storage and numerous operating bays and administrative facilities. Existing facilities used for this work will be demolished after the new facility is complete and equipment is relocated. Forty-three existing buildings are affected. Support facilities will include offices, change houses, raw material storage buildings, propellant storage magazines, waste collection and utilities.

The new buildings will be constructed within the footprint of the old buildings. An archaeological and cultural survey is not required. However, a review of the building areas will be conducted to determine the impact on archaeologically sensitive areas in previously disturbed areas.

The HEPFF will be constructed in an area formerly used for propellant manufacturing, loading and testing. The total floor area is 62,000 square feet on an 18.4 acre site.

Anticipated Environmental Effects

The HEPFF will be designed to comply with all current environmental protection standards and will remove facilities no longer needed. The operations to be performed in the HEPFF are now performed elsewhere at Picatinny Arsenal. The new facilities will better control air emissions a direct long-term environmental improvement is expected due to operations. The new facilities will eliminate transporting energetic materials between buildings by truck, there will be a small long term reduction in vehicle emissions.

The following short-term effects are expected:
-- Arsenal employment will rise due to the addition of workers during construction. This is a small increase and will end when the facility is completed.
-- Project construction will result in a small temporary increase of vehicle emissions and noise. This will end once the project is completed.

The following long-term effects are expected:
-- Consolidation of facilities is expected to save $925,000 annually.
-- Reduce exposure of explosives to people not directly associated with operations by reducing explosives transportation between operating areas.
-- Air emissions will be slightly reduced by using improved solvent vapor recovery equipment.
-- Vehicle emissions will be slightly reduced by reducing transportation of explosives between operating areas.
-- Operations will be moved away from floodplains, wetlands and streams, eliminating threats to water resources.

Conclusion

All elements of the proposed action have been evaluated in the Environmental Assessment to identify expected or potential environmental effects. No significant adverse environmental impacts have been identified, nor have conflicts with land use plans, policies or controls been observed.

It is the conclusion of the Environmental Assessment that the Proposed Action to build the new High Energy Propellant Fabrication Facility will not have a significant impact on the environment, and therefore it will not be the subject of an Environmental Impact Statement. As a result, this FNSI has been prepared.

Point of Contact for Public Comment

The deadline for the general public to comment on this project or to submit requests for further information is 30 days from the date of public notification of this Finding of No Significant Impact. The U.S. Army point of contact is Mr. Peter Rowland, 973-724-7243, Picatinny Arsenal, New Jersey 07806-5000.

1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of this document is to determine the best approach to provide improved research and development facilities for high-energy propellant formulation, fabrication and evaluation. The environmental impacts of the proposed High Energy Propellant Formulation Facility (HEPFF) at the Research, Development and Engineering Command (RDECOM), Picatinny Arsenal, New Jersey are reviewed.

The HEPFF is necessary to continue to fulfill a primary mission related to high-energy propellant formulation, fabrication and evaluation: Army-wide responsibility for propellant, igniter and propelling charge research and development. A facility is necessary that will enable the Research Development and Engineering Center (RDECOM), Picatinny Arsenal, NJ to develop sub-pilot and pilot scale quantities of new types of propellants, propelling charges, igniters and to develop new manufacturing technologies in a timely and cost effective manner. The primary concern is to determine an acceptable site on Picatinny Arsenal, if possible, with minimal impact on human health and the environment and to assess the operational impacts of that facility on the environment.

Existing facilities have inadequate fire suppression and lightning protection systems. They are located in or near wetland buffer zones. The deluge system cannot be tested because run-off would reach nearby wetlands due to lack of containment. A hazardous material containment system would be difficult and costly to install. Batch sizes are restricted so that the solvent vapor recovery systems meet environmental requirements on emissions. Explosives are transported through many areas of Picatinny Arsenal used by employees not involved in explosives operations, a costly activity. Plumbing, heating, ventilating and electrical systems are not economically repairable. The new facilities will correct these problems and expand capacity by 25% to allow for future workload. The operations to be conducted in the new facility will be the same as now. The economic analysis projects annual cost savings of $925,000. Operations have been restricted to meet quantity-distance limits that govern safe separation of operations.

The new facilities should be close to existing facilities that will continue in use. This minimizes handling and transportation, enhances safety and reduces costs. The site was selected to provide a location in a secure enclosure near other similar operations, ample space for the new facilities, quantity-distance limits, and existence of some buildings that can be rehabilitated.

The deluge system will be designed to prevent discharges to the environment during testing; the water will be captured at each nozzle with hoses and directed into a tank for disposition. If an accident occurs and the deluge is released, water will then spill onto the ground. The Environmental Affairs Office has accepted this approach.

Anticipated quantities of wastewater, air emissions and hazardous wastes are:

Wastewater - 750 gallons/month (9000 gallons/year)
Air emissions - 400 lbs/year (solvents)
Hazardous Waste - 250 lbs/month (3000 lbs/year)

Permits for hazardous waste and air emissions will be required:

Notify the Rockaway Valley Regional Sewerage Authority of new sanitary sewer connection. A Treatment Works Approval (NJAC 7:14A-22.3) is required if the connection serves more than two buildings or conveys more than 8,000 gallons per day.

Soil Erosion and Sediment Control Plan submitted to the Morris County Soil Conservation District

Potential wetlands permit – depending on wetland delineation

NPDES permit and implement practices to minimize pollutant runoff under Phase II Storm water Rules effective 01/01/04.

Air emission and hazardous waste permits.

2.0 DESCRIPTION OF PROPOSED ACTION

The proposed action renovates or replaces existing buildings in the 1300 and 1400 explosives operating areas. The thirteen new buildings will contain numerous propellant and igniter operational bays (separated by existing 12" reinforced concrete walls) and a sophisticated electromechanical control room to monitor and control the experimental processes. The newly constructed buildings will be located within the same footprint where prior buildings were located. Equipment such as mixers, extrusion presses, propellant cutters, propellant lathes, roll mills and centrifuges will be installed. Propellant characterization apparatus such as closed bomb, differential scanning calorimeter, strand burner, erosion tester, bullet impact chamber, and devices to determine heat of explosion and rheometry will be provided. This equipment will be moved from three buildings in the 400 area. After the equipment is removed, subsequent to the completion of the MCA facility, these buildings will be turned in to Department of Public Works for demolition under the Facility Reduction Program. Solvent and solventless propellant processes will be supported. The propellants will contain high energy-density fillers to enhance performance of present and future weapon systems. Supporting facilities include utilities; communications system; heating, ventilating and air conditioning system; walks, roads and gutters; and hazardous waste and air emissions collection and treatment facilities. During operations, hazardous and non-hazardous wastes will be separated and appropriate disposal techniques will be applied. The facilities will comply with applicable safety and environmental standards.

The proposed alternative includes buildings on a Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) site. The main concern it to determine if the soil is contaminated and, if so, to properly treat it.

3.0 ALTERNATIVES CONSIDERED

The RDECOM High Energy Propellant Formulation Facility will provide a modern facility for producing and evaluating experimental propellants. It will consolidate facilities now located in approximately 20 old buildings. Additionally, the existing facilities do not allow sufficient quantities of propellants to be produced and evaluated at one time. The alternatives evaluated are:

1. No action
2. Proceed with project
3. Other on-post facilities
4. Other government facilities
5. Contracting out

Alternative 1 - No-Action

This option continues existing operations in thirteen buildings used for producing and evaluating experimental propellants. The deluge system cannot be tested because water would flow to a nearby trout maintenance stream. Capacity is restricted to meet quantity-distance limits. Adverse weather (rain, snow, cold) interrupts work and has prevented timely support to mission programs. If the proposed program is not approved, these problems will continue as propellant research and development programs are performed.

Alternative 2 - Proceed With High Energy Propellant Formulation Facility (Proposed Action):

This option has been developed to solve inadequacies of existing facilities. New facilities are critical to the basic operation of RDECOM. In addition to meeting mission requirements, the upgrade is also cost effective.

The life cycle cost analysis (Tab D of the DD1391) indicates new facilities will save nearly $8 million. The facilities are being designed and a cost estimate is being developed.

The new High Energy Propellant Formulation Facility will reduce maintenance, increase productivity and enhance personnel safety since a newer more reliable less labor-intensive facility will be used. It will enhance safety and environmental protection by complying with all current requirements. New solvent vapor recovery equipment will better control air emissions. It was decided that renovation of existing buildings was too extensive, so existing buildings will be demolished and new ones will be built close to other experimental propellant facilities. This is safer than continued operation of the existing facilities by avoiding transportation of propellants outside of manufacturing areas. Thirteen new buildings will be built within the 18.4 acre project area.

Sixteen buildings are outside CERCLA sites; twenty-seven are within CERCLA sites. Ten buildings have levels of contamination requiring environmental remediation. The demolition contractor will dispose of waste in compliance with applicable hazardous waste regulations. All disposal actions will be coordinated with the Environmental Affairs Office, which will specify how these materials will be stored and disposed.

Map 1 shows the 1300 and 1400 areas where the proposed facilities will be built. Map 2 shows the 400-area where existing facilities will be closed. Map 3 shows wetlands. Map 4 shows CERCLA areas.

Alternative 3 - Other On-Post Facilities

No other location was available on Picatinny which would provide sufficient contiguous land for operations at or near the current areas being used for further processing. The selected site comprises over 18 acres. Close proximity minimizes handling and transportation, enhances safety and reduces costs. Locating the proposed facilities in another area would increase hazards and costs.

Alternative 4 - Other Government Facilities

No other government facilities exist within 200 miles with the required capabilities. It is not cost-effective to use facilities at distances over 200 miles due to public safety considerations, transportation costs and personnel travel.

Alternative 5 - Contract out

There are no industries within acceptable distances from Picatinny Arsenal that can provide R&D, Tech Base development and pilot scale quantities (between grams and 10 pounds) of energetic materials such as propellant, igniters and propelling charges in a timely manner. By evaluating energetic materials on-site, public safety is guaranteed since the need to transport hazardous or dangerous materials is eliminated.

Alternatives 3 through 5 will not be discussed further as they are not viable.

4.0 AFFECTED ENVIRONMENTS

Picatinny Arsenal is located in the New Jersey Highlands physiographic province, a 12-18 mile wide band between the Appalachian Piedmont province and the Valley and Ridge Province. This area occupies approximately 1000 square miles in northern New Jersey. The Arsenal is approximately 1.5 miles wide and 7 miles long. The New Jersey Highlands is primary composed of Piedmont age granite, genesis and marble similar to the higher-grade metamorphic and igneous rock exposed in the Piedmont Province to the southeast. Picatinny Arsenal resides in a valley. It has a relatively flat floor (1000-4000 feet wide) sloping gently southwest. The valley is approximately 700-800 feet above sea level. The valley is bounded to the northwest by Green Pond and Copperas Mountains (approximately 1200 feet above mean sea level) and to the southeast by an unnamed ridge (1150 feet above mean sea level).

Picatinny has a continental temperate climate. The average monthly temperature ranges form an average high of 72 degrees F in July to 27 degrees in January and February. The average annual rainfall is approximately 47

inches. There are six geologic faults on the Arsenal; one goes through the 1300 area. All the geologic faults are considered old inactive faults. The USGS Seismic Hazard Index scale rates more severe hazards as it increases from 1 to 100. Picatinny is located in a 5 Hazard Index Area. Because the faults are considered an area of weakness in the bedrock, an earthquake could cause some movement along those old faults but it is unlikely and the movement in all probability would be very slight.

Picatinny has a wide variety of plant and animal life, with 208 bird species, 26 fish species, 41 mammal species, 19 reptile species and 21 amphibian species observed on-post. Of these, only the Indiana bat is listed as endangered by the Federal Government. The bald eagle and bog turtle are federally listed as threatened, but these species are not expected to be found in the project area. New Jersey lists twelve endangered species; bog turtle, timber rattlesnake, upland sandpiper, red shouldered hawk, northern harrier, peregrine falcon, bald eagle, loggerhead shrike, pied billed grebe, vesper sparrow, bobcat and eastern woodrat and thirteen threatened species: wood turtle, Cooper's hawk, northern goshawk, grasshopper sparrow, long eared owl, American bittern, bobolink, little blue heron, cliff swallow, red headed woodpecker, osprey, Savannah swallow and barred owl.

No Federally threatened or endangered plants are known on post. New Jersey lists four plant species as endangered and three as threatened that have been found in wetlands and lakes not near the project area.

The valley section of Picatinny is industrialized while the mountains have mostly tree and vegetative cover. Research and Development labs, outdoor test areas and other facilities are scattered in the mountainous areas within the arsenal confines.

Picatinny had both historical building assessment and archaeological surveys. To date, there are five historic districts: Administrative Research, 600-Ordnance Area, Navy Hill, NARTS E, and NARTS C.

Picatinny has abundant surface water and groundwater. The Arsenal is drained by small streams of the upper reaches of the Passaic River Drainage basin. Green Pond Brook flows from north to south down the valley to join the Rockaway River one mile south of the facility. The northeast portion of Picatinny is drained by Burnt Meadow Brook which discharges into Lake Denmark. Lake Demark discharges from the continuation of Burnt Meadow brook into Green Pond Brook, which flows into Picatinny Lake. The lake empties into Green Bond Brook flowing southeast through the valley where it exits the arsenal. Other small streams and ditches also drain the valley, most feeding Green Pond Brook. The other primary drainage for the southeastern central portion of the arsenal is Ames Brook, which drains approximately 250 acres from forested and industrial areas. Numerous wetlands exist on Picatinny. The two primary areas are above Lake Demark and the southern 1/3 of the arsenal. These areas are not close to the proposed project area.

Picatinny is in the National and New Jersey Ambient Air Quality Standards (NAAQS and NJAAQS, henceforth referred to as AAQS) for six specific air pollutants ("criteria" pollutants) which have been established by the Environmental Protection Agency (EPA) to protect the health and welfare of the public. Ambient air quality in Morris County, New Jersey meets the National and New Jersey AAQS for sulfur dioxide (SO_2), carbon monoxide (CO), and nitrogen dioxide (NO_2). Therefore, the county is designated by EPA, per 40 CFR 81, as an attainment/unclassifiable area for these pollutants. However, ambient air quality in the county and statewide does not meet the National and New Jersey AAQS for ozone (O_3), and is therefore designated by EPA, per 40 CFR 81, as a severe non-attainment area for ozone. Nitrogen oxides (NO_x) and volatile organic compounds (VOC) are precursors to ozone formation, and are regulated as non-attainment pollutants. All emissions are regulated under the facility's Title V permit.

Picatinny has its own waste and water treatment facilities. Both facilities are at about 75% capacity. Other infrastructure support includes electric and heating provided by Sussex Rural Electric Cooperative and Chevron (gas pipeline under construction) respectively. Picatinny also possesses its own hazardous waste storage facility

permit. Wastes generated at Picatinny are collected through a series of satellite and 90-day areas for ultimate disposal. All storm water is regulated under the facilities permit, which requires best management practices and compliance with all county and NJDEP regulation.

Various topographic conditions occur on the land cover of the proposed action. The new facilities are located at the sites of existing buildings. Drainage patterns will not be affected. Existing gutters and underground catch tanks will be removed and the areas decontaminated, eliminating a potential source of water pollution.

The U.S. Department of Interior National Wetlands Inventory and fieldwork performed by Waterways Experimental Station were consulted. Some activities in the 400-area are 20 to 100 feet from Green Pond Brook, a trout maintenance stream. These buildings will be closed and are to be demolished later; care must be taken to remove all contaminants from this area. A small stream flows from the 1400 area; buildings have been sited to avoid impact on this area. New facilities are not within the 100 year floodplain and do not encroach on wetlands. Wetland boundaries will be established to determine requirements and limitations when conducting activities near wetlands.

Forty-three existing buildings (33,743 square feet) are affected by this project. Sixteen of them are outside Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites and have no soil test data; twelve are within CERCLA sites and have no soil test data and the remaining fifteen are within CERCLA sites and have soil test data available. Ten of the last fifteen buildings have levels of contamination requiring environmental remediation. The demolition contractor will dispose of waste in compliance with applicable hazardous waste regulations. All disposal actions will be coordinated with the Environmental Affairs Office, which will specify how these materials will be stored and disposed.

5.0 ENVIRONMENTAL CONSEQUENCES

This environmental assessment was conducted to identify critical and potential environmental impact for the new Propellant Fabrication and Characterization Facility. The following potential environmental consequences were addressed:

5.1 SOCIOECONOMIC IMPACTS

Picatinny Arsenal is located in Morris County, New Jersey. This area has shown a steady growth rate and moderate growth is expected to continue. This area is expected to show moderate employment increases, particularly in the service sectors. Under the No Action alternative, the existing operations will continue unchanged

Under the preferred alternative, a contractor will construct the project facilities. This will have a small, short-term positive affect on employment. Following construction of the project, in-house personnel employed in the existing facilities will relocate to the new facilities. There will be no significant effect on the area's population or employment. The action will not disrupt residences or businesses. The construction jobs are not expected to cause immigration as they should be filled from the regional work force, creating no significant changes in population, housing demand, or school population.

Surface transportation patterns outside the Arsenal will not be significantly affected by the proposal. Transportation of explosive materials through the Arsenal will be reduced. Recreational resources are not affected by the proposal.

The new facility is estimated to save $925,000 per year when compared with operations in the existing facilities. The savings result from use of fewer buildings, process and operational improvements and reduction of explosives transport.

5.2 AIR AND WATER QUALITY

Operation of the existing facilities is restricted due to various environmental factors. The deluge system cannot be tested because excess water, which is not contained, would flow into wetlands and Green Pond Brook, a trout maintenance stream. Operations are limited to the amount of solvent vapors that the solvent recovery system can effectively treat to meet the air emissions permit. Under the No Action alternative, these operations will continue unchanged.

Under the preferred alternative, new facilities will be established away from floodplains, wetlands and streams. They will be designed to allow deluge system functioning without causing spillage of possibly explosive-contaminated water. Improved solvent vapor recovery equipment for mixing operations will reduce air emissions, resulting in a minor improvement in air quality during facility operation. Process wastes will be collected for proper treatment, preventing possible discharge to the watershed. For deluge system testing, the water will be captured at each nozzle with hoses and directed into a tank for disposition. If an accident occurs and the deluge is released, water will then spill onto the ground. Project activities occurring near wetlands will be outside a buffer zone of at least 50 feet, appropriate for transition areas of intermediate resource value. The new facilities are not within the 100 year floodplain boundaries and do not encroach on wetlands.

No permanent adverse impact to the quality of air or water is expected from the preferred alternative.

Fire suppression systems will not use halon or other ozone-depleting compound. No negative changes in air quality arising from the proposed action are expected when compared to existing conditions. The new facilities will be designed to allow deluge system functioning without causing spillage of explosive-contaminated water.

No permanent adverse impact to the quality of air or water is expected from the proposal.

5.3 HISTORICAL, ARCHITECTURAL, ARCHEOLOGICAL AND CULTURAL RESOURCES

Based upon reviewing a "Determination of Eligibility of Select Buildings for Inclusion on the National Register of Historic Places", prepared by Panamerican Consultants, Inc. for Picatinny in 2004, no facilities listed in this assessment will be impacted by the proposal. Although buildings will have the same locations, each specific building area needs to be reviewed for its impact on archaeological sensitive areas in sensitive but disturbed areas.

5.4 BIOTIC COMMUNITIES

The proposal is not expected to impact on the Arsenal's biotic communities. Three existing buildings are near wetlands and a trout maintenance stream; these will be closed and demolished. The new facilities will be located in semi-improved grounds and buildings. Natural biotic communities (i.e. those normally found on unimproved grounds) are not expected to be present.

5.5 ENDANGERED AND THREATENED SPECIES OF FLORA AND FAUNA

The Arsenal's rare fauna includes six New Jersey designated endangered species, four New Jersey designated threatened species and eight additional species considered globally imperiled or rare. None occur near the proposed facility. The Federally endangered Indiana bat (*myotis sodalis*) exists on post and hibernacula are within one half mile of the project site. Construction and tree clearing activities will be restricted near this area; tree felling and trimming must be done between 15 November and 1 April. The Federally threatened bog turtle (*clemmys muhlenbergii*) was resident on post circa 1980's about 3.5 miles from the project site, but now may only occur off post beyond the northwestern boundary. The timber rattlesnake exists on arsenal; an area down slope from the project area (buildings 1425-1437) has been suggested as both winter and summer habitat, but it is more likely to occur in summer if at all.

Lists of wildlife which could be expected to be found in project areas are part of the Integrated Natural Resources Management Plan, February 2001, available from the Environmental Affairs Office. The specific lists are Part I, Table 3.4, Picatinny Plant List and Table 3.4.5, Endangered Plants and Species of Concern, and Part IV, Table 1.4.1.1, Picatinny Dragonfly & Damselfly List, Table 1.4.2.1.2, Table 1.4.1.1, Picatinny Butterfly & Moth List, Table 1.4.2.2, Picatinny Herptile List, Table 1.4.2.3, Picatinny Bird List, Table 1.4.2.4, Picatinny Mammal List, and Table 1.4.3, Endangered and Threatened Animals.

The Propellant Fabrication and Characterization Facility requires a minor amount of space (62,000 square feet of buildings) that will impose no adverse impact on permanent or migratory residents or their habitats. A review of endangered species habitat areas was conducted. No trees will be disturbed during construction. Precautions regarding Cooper's Hawk, red shouldered hawk and timber rattlesnakes are required. Trees which could serve as nesting sites must not be disturbed during the breeding season. If trees need to be removed or altered, they should be felled (or pruned) between 15 November and 1 April. If rattlesnakes are encountered, they should not be molested. The Natural Resources Manager should be contacted for capture and relocation if possible, otherwise report last known sighting location date and time.

5.6 WETLANDS

Wetlands are present near buildings in the 400-area, which are to be closed and demolished. The site location of the construction and renovation activities in the 1300 area is not near wetlands, so no encroachment of wetlands is expected.

A brook crosses the 1400 area near proposed building 1408. No building is planned to encroach on the brook, and care will be taken during construction to avoid impact on it. Wetland identification will be conducted to determine the presence and proximity of wetland areas at the proposed site. Wetland delineation will be conducted in the areas where wetlands are identified. A letter of interpretation will be pursued with the NJDEP to determine the resource value of the wetlands to determine the buffer area. Construction/demolition activities within the established buffer area will require a wetlands permit from NJDEP.

5.7 FLOODPLAIN

Several existing buildings in the 400-area (status quo alternative) are near wetlands and a trout maintenance stream. Under the proposed project, these buildings will be closed and demolished. The proposed project in the 1300 and 1400 areas where new facilities will be built is outside the 100-year floodplain.

5.8 PRIME AND UNIQUE FARMLANDS

No prime or unique farmland will be affected at the proposed site. No agricultural activities currently are known to exist on the Arsenal.

5.9 ENERGY SUPPLY AND RESOURCES

The High Energy Propellant Formulation Facility is not expected to create an undue requirement for energy or to have any adverse effects on natural resources. Most equipment in the existing buildings will be relocated to the new facilities. Lighting and ventilating systems will be new with modern high-efficiency equipment, which may result in reduced energy consumption. No specific environmental concerns related to water or power consumption have been noted.

5.10 SOLID WASTE IMPACTS

The types of solid waste generated are not expected to differ significantly from those generated by existing similar facilities. The facility will be designed to minimize generation of wastes and to collect those that are generated for proper treatment, both hazardous and non-hazardous, thus avoiding environmental impact. Sanitary wastes will be collected and routed via existing sewer lines to the existing installation sewage treatment plant, which has sufficient capacity. Rainwater will be collected and discharged to French drains.

5.11 CONSTRUCTION IMPACTS

Under the No Action alternative, the existing buildings will continue in use with no construction impacts. Existing deficiencies will not be corrected.

The preferred alternative affects forty-three existing buildings with a total floor area of 33,743 square feet. Sixteen of them are outside Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) sites and have no soil test data; twelve are within CERCLA sites and have no soil test data and the remaining fifteen are within CERCLA sites and have soil test data available. Ten of the last fifteen buildings have levels of contamination requiring environmental remediation. Three buildings to be closed on completion of this project are near wetlands. Soil sampling is required at these three buildings to determine if contamination exists. During demolition, storm water must be controlled to avoid release of contaminated water into Green Pond Brook. The demolition contractor will dispose of solid waste in compliance with applicable hazardous waste regulations. All disposal actions will be coordinated with the Environmental Affairs Office, which will specify how these materials will be stored and disposed.

Construction vehicles will cause a direct, short-term, negligible degradation to ambient air quality in the area. Vehicles will conform to applicable air emission standards.

The total project site area is 18.4 acres; approximately 1.25 acres of soil disturbance will occur during construction and decontamination activities. Air pollution controls such as spraying down loose soil will be implemented, if necessary, to minimize dust and impact. Best Management Procedures should be used to reduce the risk of spills or other accidental exposure of materials and substances to storm water run off. These practices are routine procedures that reduce the amount of pollution in runoff to prevent or minimize pollution of storm water. They are generally required with any Soil Erosion and Sediment Control Plan and include silt fencing, vehicle entrance controls and vegetative seeding of all exposed soil for any length of time. Storm water will be routed to existing storm sewers. As a result, the new buildings will have no direct impact on watercourses.

5.12 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USE OF MAN'S ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

Short-term uses include all facilities and activities on the Arsenal, specifically those proposed under this project. Long-term productivity implies effects on those values that are inherent in the affected natural environment. Arsenal lands have been committed to its use for the foreseeable future. No remaining long-term use of the proposed site has been identified that will be adversely affected by the proposed project. The proposed facility could be maintained as proposed indefinitely, or converted to some alternate productive use. The building must be decontaminated within 90 days or a closure plan must be developed (AMC-R 385-5) if the building is abandoned or converted to other uses.

Aspects of the environment that will be subject to short-term use besides the site itself, will be the air, water and habitat. At the projected level of activity, the proposed facility will not materially degrade air or water quality, nor adversely affect its capability to sustain life in the surrounding biotic environment.

5.13 AESTHETICS AND OTHER CONSIDERATIONS

The new buildings will present a modern industrial appearance. The project is expected to cause no negative visual impacts to properties outside or within the Arsenal. The proposed site has previously been used for ordnance manufacture and disassembly; it is possible that soil contamination exists. Evaluations are planned in the general area to determine the presence and extent of such contamination, which would be remediated prior to project construction.

There is a very low probability of unexploded ordnance (UXO) being present. Should UXO be discovered, it will be handled as directed by the Safety Office. A survey for unexploded ordnance/hazardous (UXO) is not required.

5.14 NOISE IMPACTS AND VIBRATION

Construction activity under the preferred alternative will result in minor noise impacts and vibration. These impacts will be short term, i.e., during construction. Construction activities will be confined to the 400, 1300 and 1400 areas.

Because of the nature of activities performed at RDECOM, the Arsenal is considered to be a commercial area for the purposes of construction noise evaluation. Noise from testing will require design controls to reduce interior and exterior levels. The following standards should be incorporated into the construction documents to minimize noise due to installation and construction activities:

Noise Level (dBA)	Day*	Night**
Semi-Industrial/Commercial Areas	85	75

The noise level outside the construction limits for non-scheduled, intermittent, short-term noise from mobile equipment shall not exceed the following limits:

Semi-Industrial/Commercial Areas	85	75

* 7 a.m. to 10 p.m. daily except Sundays and legal holidays.

** 10 p.m. to 7 a.m. daily, including all day Sunday and legal holidays.

5.15 HEALTH AND SAFETY

The existing facilities are restricted to less than desired operational capability due to shortcomings in the solvent recovery system and to quantity-distance requirements. The new facilities are being designed to meet all current health and safety requirements, eliminating these problems. New facilities will include improved air emissions controls for solvents, which will improve air quality by reducing the amount of volatile organic compounds (VOCs) released during operations. New magazines will be much closer, reducing vehicle emissions from trucking of explosive materials to and from processing and testing areas. Fire suppression systems will not use halon or other ozone-depleting compound. No negative changes in air quality arising from the proposed action are expected when compared to existing conditions.

5.16 STORAGE TANKS

The proposed alternative will require compressed air tanks for equipment operation and instrumentation. Wastes will be collected prior to treatment. Tank sizes will be determined during facility design.

6.0 AGENCIES AND ORGANIZATIONS CONSULTED

External:

McEvoy, Joseph	- Morris County Soil Conservation Service, Morris County, NJ (soil conservation)	973-538-1557

Internal:

Kapoor, Vinni	- Directorate, Public Works, RDECOM (program issues)	973-724-2588
Van De Venter, Jon	- Environmental Affairs Office, Picatinny (Natural Resource Manager)	973-724-4691
Ridgel, Kelly	- Johnson Controls, Inc, Picatinny (Cultural Resource Manager)	973-724-8014

6.1 PREPARER

Internal:

Kazin, Gary — Numerous short courses on environmental assessments
Seven years experience in preparing environmental documents.

7.0 LIST OF REFERENCES

Code of Federal Regulations, 29 CFR, 40 CFR, and 49 CFR.

Soil Survey of Morris County, NJ, U.S. Dept. of Agriculture Soil Conservation Service, issued August 1976.

Hydric Soils, Morris County, NJ, revised July 1987, amended February 1990.

U.S. Department of the Interior, Fish and Wildlife Service, National Wetlands Inventory, 1976.

Evaluation of Structures Built Prior to 1946 at Picatinny Arsenal, NJ, New York District, U.S. Army Corps of Engineers, December 30, 1994.

Remedial Investigation Concept Plan for Picatinny Arsenal, U.S. Army Corps of Engineers Toxic and Hazardous Materials Agency, March 1991.

Directory of State Programs for Regulating Construction.

U.S. Army Regulation 200-1, Environmental Quality, Environmental Protection and Enhancement, 21 February 1997.

U.S. Army Regulation 200-2, Environmental Impacts of Army Actions, 29 March 2002.

U.S. Army ARDEC Integrated Natural Resources Management Plan, May 2001.

Workplan, Summary Investigation, Tables for Phase III 1A Study Sites, ICF Kaiser Engineers, Draft of January 1998

Economic Analysis Executive Summary Report, Propellant Fabrication and Characterization Facility.

Picatinny Arsenal List of Endangered, Threatened and Rare Species, April 1995.

Hazardous Waste Management Plan, February 2001.

Toxic Environmental Cleanup Environmental Assessment, April 1991.

Picatinny Arsenal Soil Management SOP Protocol

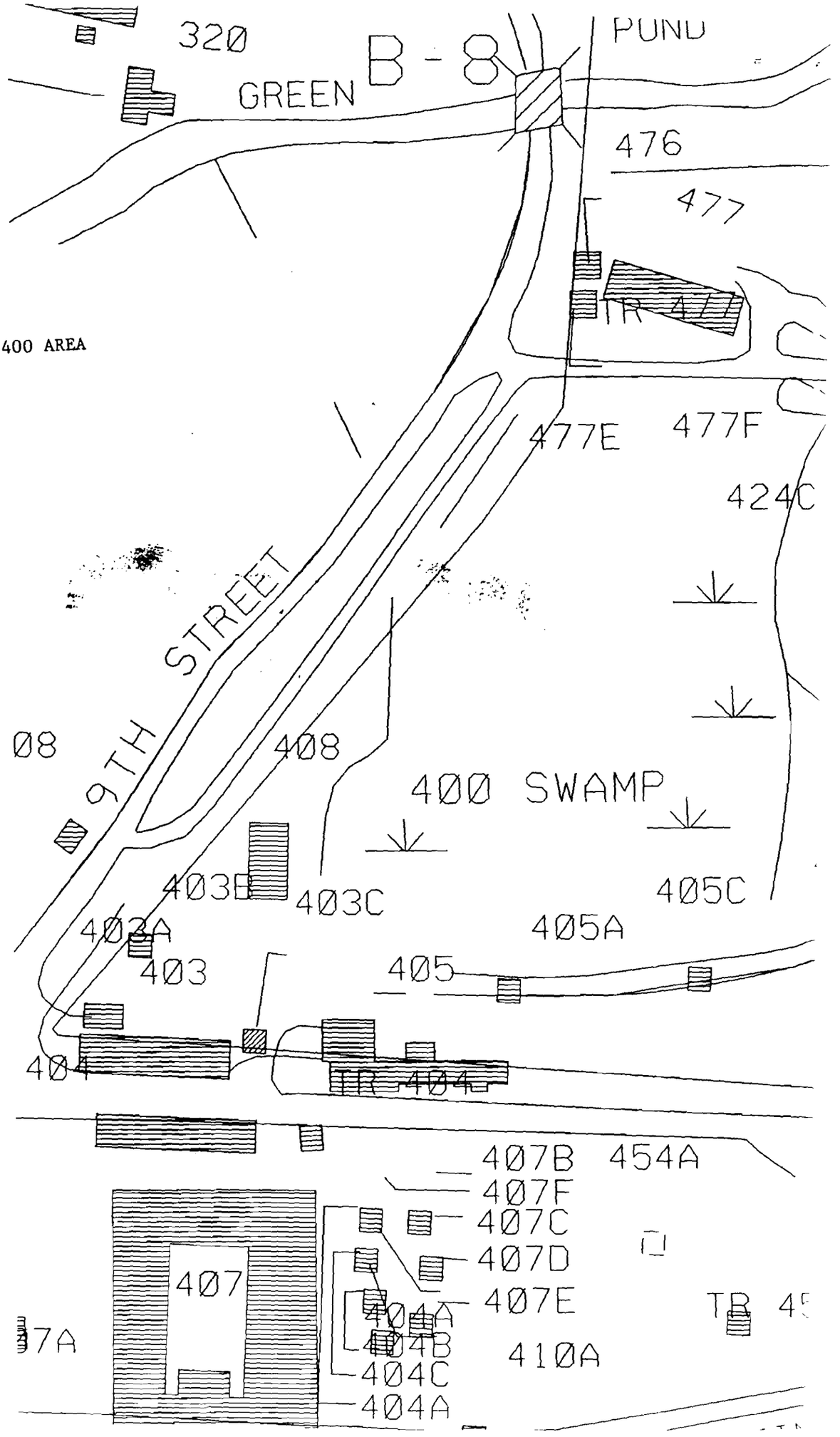
APPENDIX

Map 1, 1300 and 1400 Areas

Map 2, 400 Area

Map 3, Wetlands near 1300 and 1400 Areas

Map 4, CERCLA Sites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GREEN
PUND
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477
TR 477
400 AREA
477E
477F
424C
9TH STREET
08
408
400 SWAMP
403B
403C
405C
403A
405A
403
405
404
TR 404
407B
454A
407F
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407E
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404A
404B
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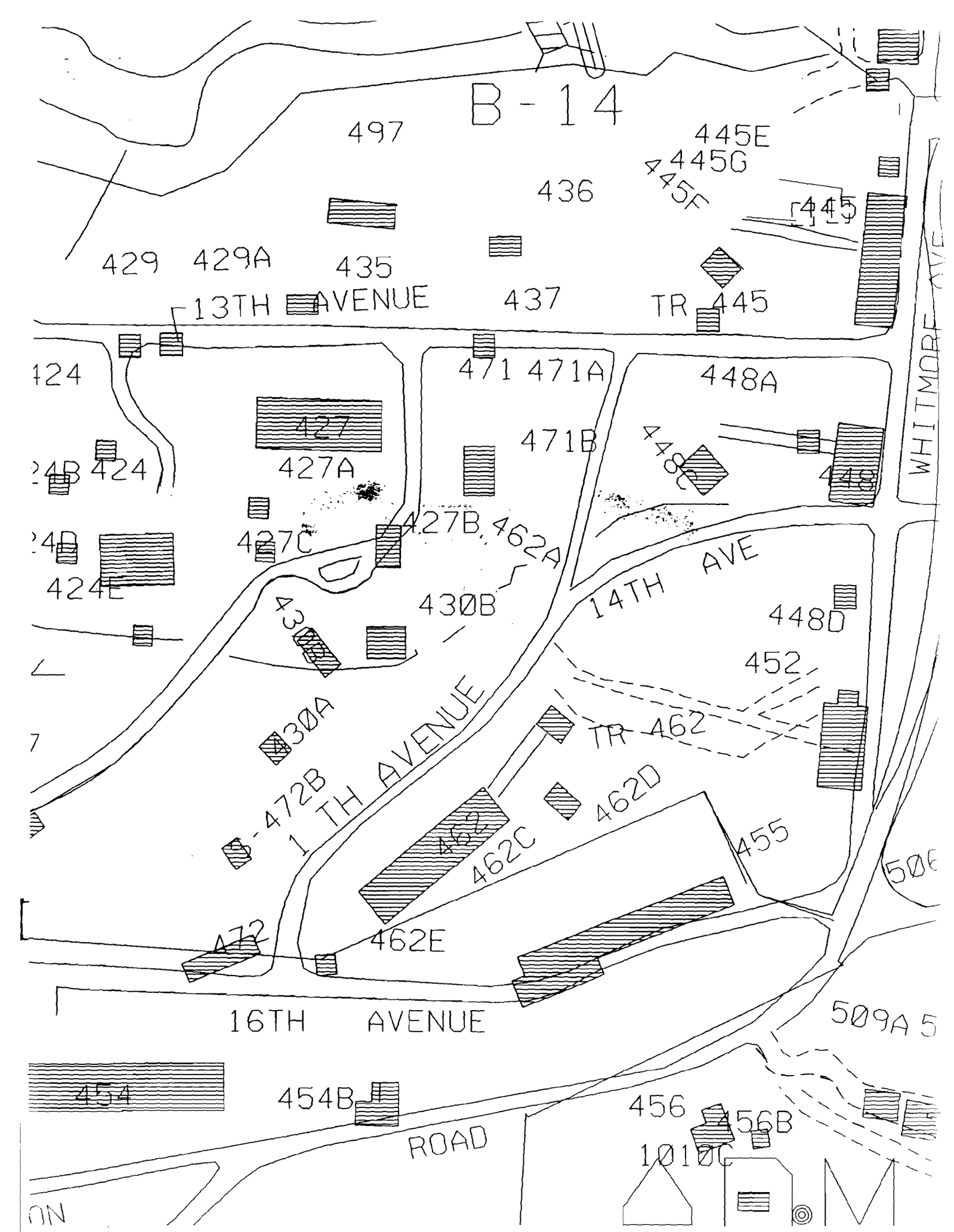
404A
410A
7A


B-14
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445E
445G
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436
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429
429A
435
437
TR 445
13TH AVENUE
424
471 471A
448A
427
427A
471B
424B
424
448
427C
427B
462A
424E
430B
14TH AVE
448D
452
430A
TR 462
472B
11TH AVENUE
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462C
462D
455
462E
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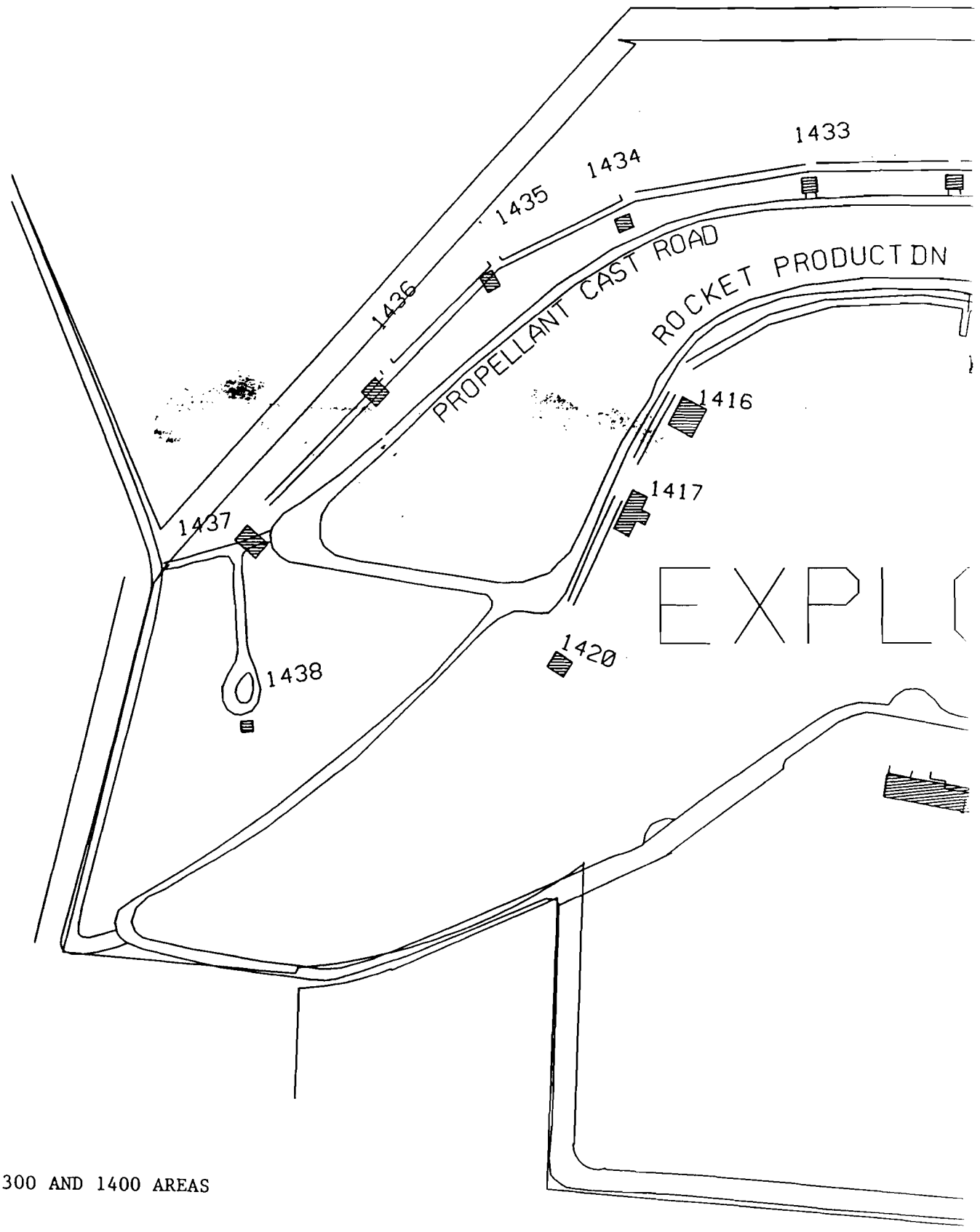
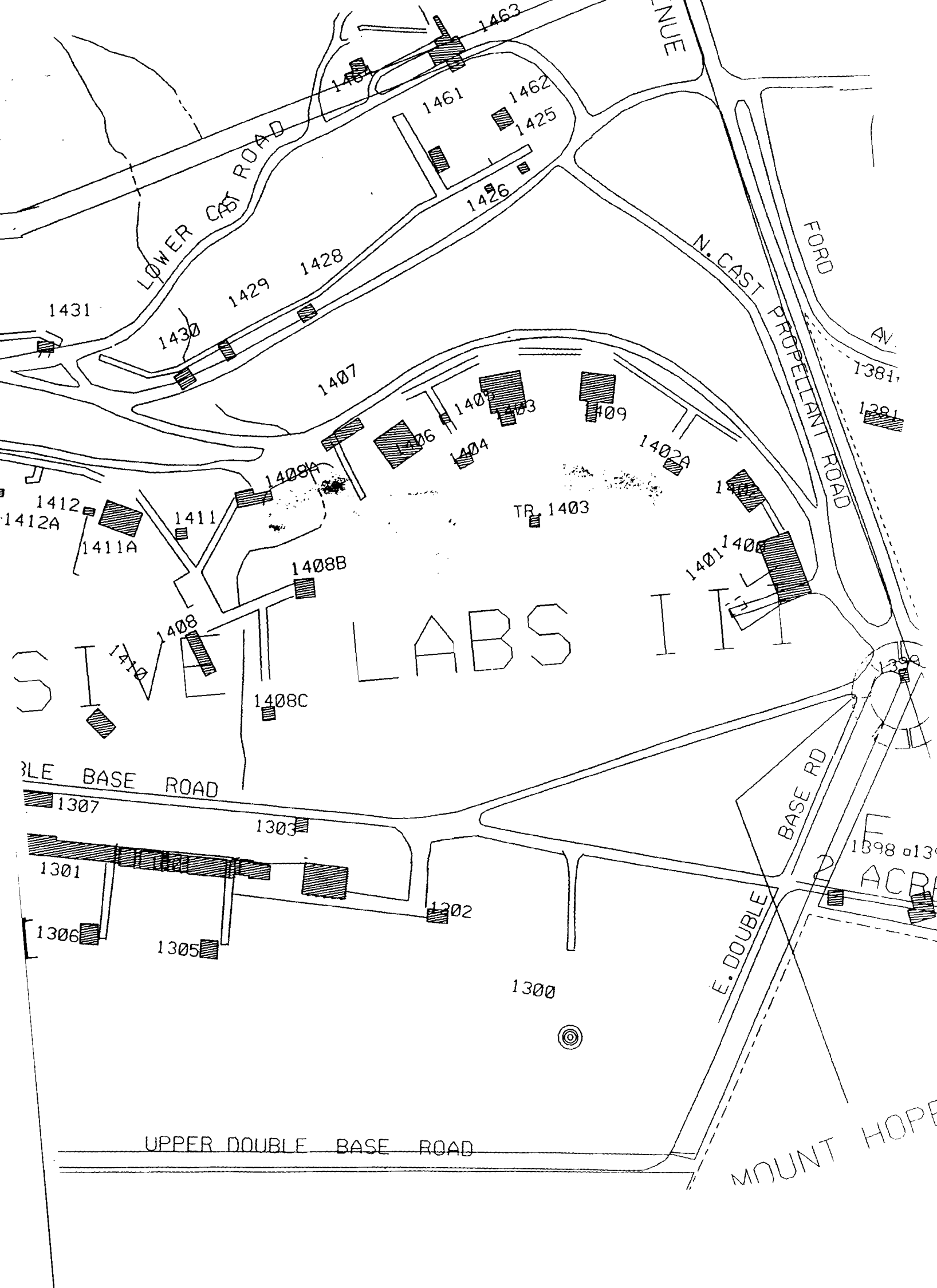
16TH AVENUE
509A
454
454B
456
456B
ROAD
WHITMORE



1300 AND 1400 AREAS


LOWER CAST ROAD
N. CAST PROPELLANT ROAD
FORD AV
1463
1462
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1409
1406
1404
1402A
1408A
1412
1412A
1411
1411A
TR 1403
1408B
1408
1408C
1410
1401
1400
1381
1381,
1398
1307
1303
1301
1306
1305
1302
1300
BASE ROAD
E. DOUBLE BASE RD
UPPER DOUBLE BASE ROAD
MOUNT HOPE

LEGEND FOR MAPS

CERCLA map:

High (Red): All sites having funds allocated for remediation of soil, subsurface soil, surface water, or sediment. Sites with groundwater contamination would not have as severe an impact to development due to the installation's centralized water distribution system. Also, all CERCLA sites currently being used for the testing of ordnance are categorized as high.

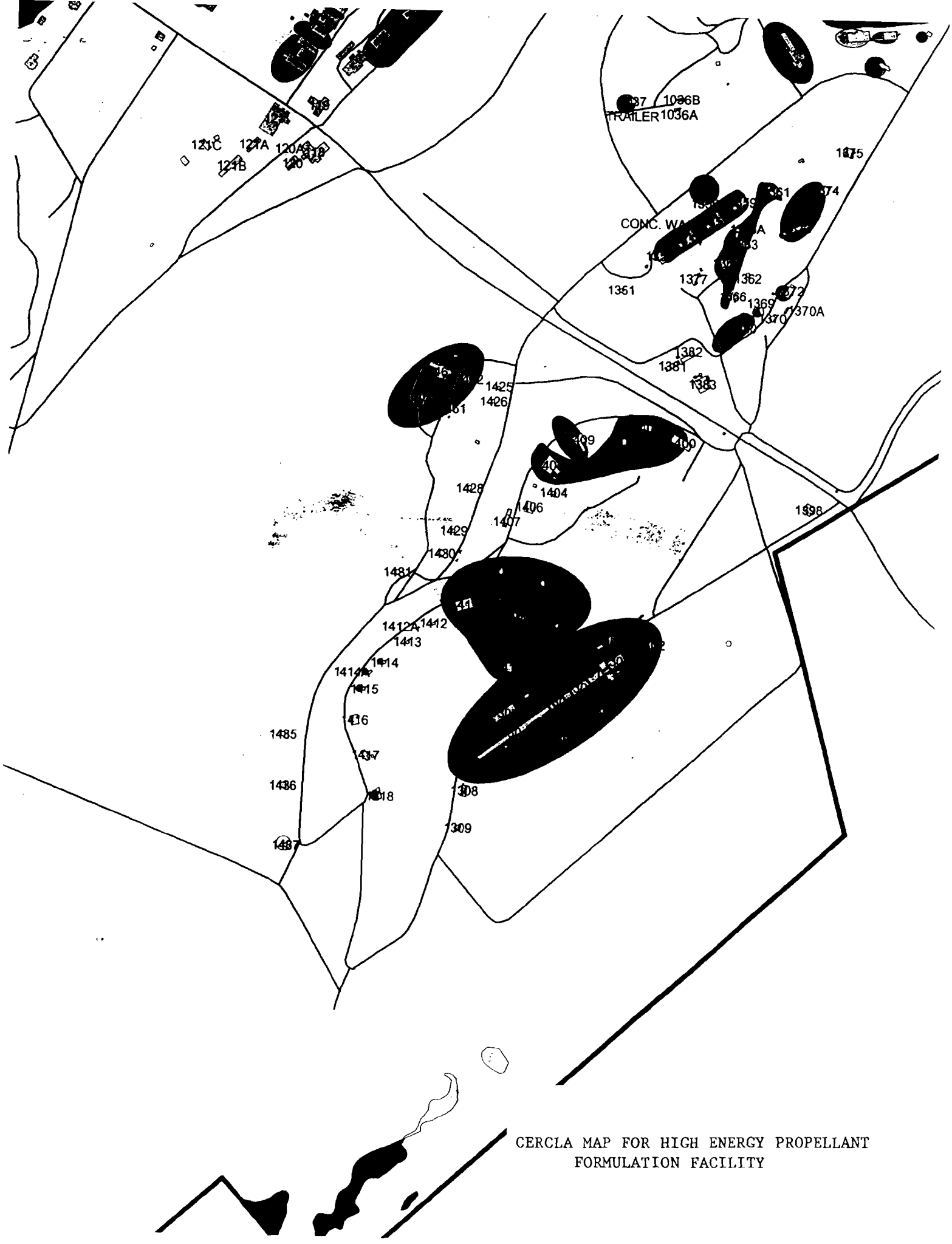
Medium (Yellow): Currently there is no funding for active remediation. The breakdown between medium and low is based on the frequency of contamination exceedances, number of chemicals exceeding the LOC (level of concern) at the site and the site history. This is somewhat subjective and based on professional judgement.

Low (Green): No funding for planned or active remediation. The breakdown between these categories was based on the frequency of exceedances, number of chemicals exceeding the LOC at the site and the site history. This is somewhat subjective and is based on professional judgment. Some of these sites the Army considers "response complete" and plans no further action at these sites.

Wetlands map:

Blue areas are open water.

Green area is wetland.



CERCLA MAP FOR HIGH ENERGY PROPELLANT
FORMULATION FACILITY

WETLANDS MAP FOR HIGH ENERGY PROPELLANT FORMULATION FACILITY